



Durham Comprehensive Plan

Chapter 7, Conservation and Environment Element

**Durham City-County Planning Department
Public Hearing Draft, June 24, 2004**

The Durham Comprehensive Plan

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Conservation and Environment Element



Summary of Issues
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The conservation of natural resources and protection of valuable open spaces are important in maintaining and improving the high quality of life that Durham residents desire. The community's natural resources and open spaces can be viewed as its "green infrastructure." The purpose of the Conservation and Environment Element of the Durham Comprehensive Plan is to promote the responsible use, protection and restoration of Durham County's green infrastructure. The Element contains goals, objectives and policies necessary for their long term maintenance and protection. They focus on water quality, air quality, floodplain protection, energy conservation, important habitats and rare species, open space planning, and farmland preservation.

Summary of Issues

- 1. Protection of Natural Features.** New development can significantly impact natural features, such as floodplains, streams, steep slope areas, wetlands and natural vegetation. Land use regulations try to strike a balance between achieving broader community objectives of environmental protection while recognizing the rights of private property owners. Do present development regulations regarding the protection of environmentally sensitive areas strike the right balance for Durham?
- 2. Protection of Natural Inventory Sites.** Typical of many communities, Durham faces the problem of how to accommodate new development while protecting its natural heritage. Many of the Natural Inventory sites are protected: at least partially in public or institutional ownership and managed as natural areas, forestlands or wildlife habitat. How can Durham accommodate new development while protecting Inventory sites? What are the best techniques for preserving Inventory sites? Should they be regulated or purchased, and if purchased, how much public access is appropriate?
- 3. Water Supply and the Vulnerability of Aquatic Species.** Durham faces two potentially conflicting public objectives. The City needs to develop a new and cost-effective raw water supply to address anticipated future needs. At the same time, Durham may

also want to take steps to prevent degradation of the habitat of these important species. How can Durham develop water supplies and preserve these important wildlife habitat areas? Can other water supply options satisfy Durham's water demand with less impact on habitats?

4. **Future Air Quality.** Poor air quality resulting from increases in ozone levels can be anticipated due to increases in vehicle miles traveled. This can have an impact on Durham's quality of life for many residents who exercise or have sensitivity to air quality. Poor air quality can also affect Durham's ability to recruit new businesses. How can Durham best address the complicated air quality issues resulting from increased auto emissions? Should Durham develop a coordinated policy to address urban heat islands and greenhouse gas emissions?
5. **Protection of Open Space.** Durham residents have consistently expressed a desire to protect valuable open spaces. How can Durham best identify important open spaces to protect, both within and outside of the City? What actions can local governments and private property owners take to protect valuable open spaces from negative impacts of development? Perhaps as important, what sources of funds, both traditional and new, can be tapped to continue to implement Durham's open space preservation programs?
6. **Farmland and Development Pressures.** Farming in Durham faces continued pressure due to the value of land for suburban development and the lowered economic returns for farming. What steps should Durham take to protect farmland in the County? Where should farmland protection efforts be targeted? What techniques will prove to be the most effective for Durham to protect farmland?

Goal 7.1, Natural Environment

Provide a high quality natural environment. Minimize undesirable affects from development on air quality, water quality, and natural resources. Protect and preserve floodplains, natural inventory sites, and open space.

Objective 7.1.1. Monitoring Environmental Quality

Monitor the quality of Durham's natural environment in order to identify trends in environmental quality, provide a basis for assessing possible actions to improve environmental quality, and to publish on a regular basis in order to educate local officials and the general public about environmental issues.

Policy 7.1.1a. Environmental Indicators. The City-County Planning Department and the City ~~Environmental Resources~~ Water Management Department, in conjunction with other City and County Departments, shall implement a set of environmental

indicators as proposed by the Environmental Affairs Board to establish a baseline and regularly monitor and assess changes in the quality of Durham's natural environment.

Objective 7.1.2. Water Quality

Minimize the impacts of development on water quality and enhance the present water quality in Durham's streams.

Policy 7.1.2a. Sedimentation and Erosion Control. The County Engineering Department shall continue to regulate land-disturbing activity to control erosion and sedimentation in order to prevent the pollution of water and other damage to lakes, rivers, streams, and other public and private property. No person shall initiate any land-disturbing activity that uncovers more than one acre without having an erosion control plan approved by the Sedimentation and Erosion Control Office that:

- i. Identifies critical areas on the site subject to severe erosion and offsite areas vulnerable to damage;
- ii. Limits time of exposure;
- iii. Limits exposed areas;
- iv. Controls surface water originating upgrade of the exposed areas;
- v. Controls sedimentation; and
- vi. Manages stormwater runoff to control the velocity at the point of discharge to minimize accelerated erosion of the site and increased sedimentation of the stream.

(See Water and Wastewater Element, Policy 9.4.4a, Sedimentation and Erosion Control.)

Policy 7.1.2b. Sedimentation and Erosion Control and Rare Mussels Habitat. The County Engineering Department, in conjunction with the Environmental Affairs Board, shall research and propose changes to the Durham sedimentation and erosion control requirements to establish a level of sedimentation control that will protect the water quality and the habitat of rare mussel species in the Little River, the Flat River, and the Eno River watersheds.

Policy 7.1.2c. Stream Buffers. Through the Unified Development Ordinance, continue to require undisturbed, naturally vegetated buffers of at least 50 feet on land adjacent to intermittent and perennial streams and prohibit most development activities in order to protect water quality. Through the Unified Development Ordinance, limit the ability to utilize land in stream buffers to meet minimum lot size requirements.

Policy 7.1.2d. Low Impact Development. In order to reduce the impact of development on stream water quality, the City Public Works Department and the County Engineering Department shall research and propose changes to the City and County Stormwater Ordinances to encourage low impact developments (LID) design.

Low Impact Development

Low impact development (LID) refers to an ecologically-friendly approach to site development and stormwater management. LID aims to preserve open space and minimize land disturbance; protect drainage ways, vegetation, soils, and sensitive areas; re-examine the use and sizing of traditional site infrastructure and customize site design to each site; incorporate wetlands, stream corridors and mature forests as site design elements; and decentralize and micromanage stormwater at its source.

Policy 7.1.2e. Permanent Buffer Protection. The City Public Works Department and the County Engineering Department shall seek grant funds from the NC Clean Water Management Trust Fund, the Ecosystem Enhancement Program and other sources to fund programs to purchase land and/or easements in order to increase the amount of stream buffer areas in permanent protection.

Policy 7.1.2f. Wetland Restoration The City Public Works Department and the County Engineering Department shall work in conjunction with the ~~State Wetlands Restoration Program~~ NC Ecosystem Enhancement Program to explore opportunities for stream and wetland restoration projects on streams in Durham.

Policy 7.1.2g. Stream Bank Vegetation Restoration. In order to protect water quality and stream habitat, the County Engineering Department and the City Public Works Department, in conjunction with the local nonprofit organizations, shall research, propose, and implement programs to restore natural stream bank vegetation in Durham.

Policy 7.1.2h. Collaborative Partnerships for Water Quality. The City-County Planning Department, the City Public Works Department, and the County Engineering Department shall collaborate with and support the efforts of local nonprofit organizations, such as Ellerbe Creek Watershed Association and the Friends of South Ellerbe Creek, to improve stream water quality.

Objective 7.1.3. Floodplain Protection

Protect Durham's floodplain areas from inappropriate development in order to maintain the carrying capacity of the floodplain, improve water quality, provide wildlife habitat, and reduce potential threats to human life and damage to property.

Policy 7.1.3a. Floodplain Protection. Through the Unified Development Ordinance, prohibit most development in the 100 year floodplain, as identified by the Federal Emergency Management Agency (FEMA).

Policy 7.1.3b. Floodplain Determination. The City Public Works Department, in conjunction with the County Engineering Department, shall model the 100-year floodplain based on full build-out conditions (rather than existing conditions) in order to better identify and protect the 100-year floodplain from adverse impacts of development and to protect property from damage.

Objective 7.1.4. Air Quality

Achieve Federally-mandated air quality standards in Durham as identified by the National Ambient Air Quality Standard and work to improve air quality.

Policy 7.1.4a. Greenhouse Gas Emissions Local Action Plan
The City ~~Environmental Resources~~ Water Management

Department and County Engineering Department, in conjunction with other City and County Departments and the Environmental Affairs Board, shall update and present to elected boards for adoption and implementation the Greenhouse Gas Emissions Local Action Plan, initially prepared for the City in October 1999.

Policy 7.1.4b. Impervious Surface Shading. Through the Unified Development Ordinance, require shading of impervious surfaces, such as streets and parking lots, in the Suburban, Urban, Compact Neighborhood and Downtown Tiers, in order to reduce glare and heat build up within urban areas, thereby increasing the air quality benefits of tree cover.

Policy 7.1.4c. Tree Cover. The City-County Planning Department, in conjunction with the City Public Works Department and the Environmental Affairs Board, shall research and propose development regulations and/or programs to increase tree coverage in the Suburban, Urban, Compact Neighborhood and Downtown Tiers in order to reduce air pollution, improve water quality, improve the quality and reduce the quantity of stormwater runoff, ameliorate heat retention, and provide aesthetic benefits to Durham residents.

Policy 7.1.4d. Alternative Fuels for City and County Vehicles. In order to maintain air quality, preserve natural resources, reduce reliance on oil, and save money through lower fuel costs, the City General Services Department and the County General Services Department shall implement a program for using non-gasoline “alternative fuels” in City and/or County vehicles.

Objective 7.1.5. Energy Conservation

Reduce the amount of energy consumed for heating and cooling of buildings in order to reduce heating and cooling costs and reduce greenhouse gas emissions.

Policy 7.1.5a. Energy Consumption in City, County and Schools Buildings. The City General Services Department, the County General Services Department, and the Durham Public Schools shall establish ongoing programs, appropriately staffed, to identify opportunities for cost-effective energy conservation in all public buildings.

Policy 7.1.5b. Energy Saving Designs. The City General Services Department, the County Engineering Department, and the Durham Public Schools shall ensure that new facilities planned by the City and County incorporate energy conservation features in accordance with the Triangle J Council of Governments High Performance Building Standards.

Policy 7.1.5c. Million Solar Roofs Initiative. The Durham County Center of the NC Cooperative Extension Service shall maintain its partnership in the Million Solar Roof Initiative and shall develop and staff programs to promote residential, commercial, institutional and industrial energy savings.

Million Solar Roofs Initiative

The Million Solar Roof Initiative (MSRI) is a US Dept. of Energy effort to facilitate the installation of solar energy systems on one million US buildings by 2010. The MSRI is designed to support states and local communities as they develop a strong commitment to the sustained deployment of solar energy technologies.

Policy 7.1.5d. Green Builder Program. The Environmental Affairs Board shall encourage builders of new residential construction to adopt innovative building practices that achieve energy efficiency improvements above the minimum energy code, and other sustainable building practices by developing a voluntary rating system, such as the Home Energy Rating System, so that an analysis can be given to the homebuyer and/or lender of anticipated energy usage.

Policy 7.1.5e. Energy Efficient Mortgage Programs. The City and County shall encourage lenders to relax underwriting guidelines for homes with energy efficient features verified by the Home Energy Rating System.

Objective 7.1.6. Important Habitats and Rare Species Protection

Identify and protect sites that provide habitat for important plant and animal species, support populations of rare plants and animals, and serve as critical corridors for animal movements.

Policy 7.1.6a. The Inventory. The City and County shall adopt and include by reference in the Durham Comprehensive Plan the “Durham County Inventory of Important Natural Areas, Plants and Wildlife” as a source of information about the location and importance of special places and important species in Durham County.

Policy 7.1.6b. Development Review and the Inventory. The City-County Planning Department and other City and County Departments shall review development proposals in relation to the Inventory to preserve Inventory sites and encourage new developments to avoid the sites by using planned developments, cluster developments, conservation-by-design subdivisions, and other means.

Policy 7.1.6c. Preservation and Management Plans. The City-County Planning Department and the County Engineering Department shall prepare or participate ~~with private property, such as Duke University and US Army Corps of Engineers,~~ in the preparation of detailed plans for the preservation and management of publicly owned sites identified in the Inventory.

Policy 7.1.6d. Regular Inventory Updates. The City-County Planning Department shall assist the Durham Inventory Review Committee in updating the Inventory as necessary to maintain the accuracy of the information.

Policy 7.1.6e. Inventory Sites and Property Owner Contact. The County Engineering Department shall contact and work with owners of properties containing Inventory sites to propose acquisition of conservation easements or other protection measures to ensure preservation of Inventory sites.

Policy 7.1.6f. Invasive Landscape Plants. Through the Unified Development Ordinance, prohibit the use of invasive landscape plant species, and support the use native plant species where possible.

Goal 7.2, Open Space

Protect important open spaces in Durham County from the impacts of development.

Objective 7.2.1. Open Space Level of Service Standards

Establish and maintain an appropriate level of services for open space in the City and County.

Policy 7.2.1a. Open Space Level of Service Standards. Through the Unified Development Ordinance, require preservation of open space appropriate to the intensity of development in each Tier, consistent with the following Table 7-1, Open Space Level of Service Standards. Through the Unified Development Ordinance, develop a process to waive the standards for small infill sites in the Urban, Compact Neighborhood and ~~Urban~~ Downtown Tiers at the discretion of the Planning Director.

Table 7-1, Open Space Level Of Service Standards

Tier	Minimum Open Space Required	
	Residential	Nonresidential
Rural	40%	--
Suburban	15%	10%
Urban	5%	3%
Compact Neighborhoods	2%	1%
Downtown	1%	1%

Policy 7.2.1b. Interconnected Open Spaces. The City-County Planning Department shall develop a plan to interconnect many of the larger areas designated for open space as well as above open space plans and large undeveloped large tracts to reduce isolation resulting from fragmentation.

Objective 7.2.2. Open Space Planning

Through systematic, community based planning processes, identify important natural, cultural, historic and open space resources in Durham County and establish plans for their long term preservation and protection.

Policy 7.2.2a. Recreation and Open Space Areas. Durham shall identify and protect Recreation and Open Space areas, as shown on Map 2-1, Future Land Use Map, to include:

- i. The 100-year floodplains;
- ii. US Army Corps of Engineers land;
- iii. Eno River State Park;
- iv. Duke Forest;
- v. NCSU Hill Forest;
- vi. Lake Crabtree lands;
- vii. Public land around Lake Michie;
- viii. Public land around the Little River Reservoir;
- ix. City New Hope Corridor Open Space;
- x. County New Hope Corridor Open Space;
- xi. County Parks;
- xii. City Parks;
- xiii. Privately-owned conservation lands held by local land trusts, such as the Eno River Association, the Triangle Land Conservancy, the Ellerbee Creek Association, and other local land trusts;
- xiv. Culturally or historically significant cemeteries;
- xv. Abandoned or unused railroad corridors; and
- xvi. State-owned historic sites.

Policy 7.2.2b. Eno River State Park Protection and Coordination. Through the Unified Development Ordinance, the City and County shall protect the Eno River State Park by restricting uses adjacent to the Park to those compatible with recreational uses, such as residential uses and public and private recreation and open space. The City Parks and Recreation Department and the County Engineering Department shall coordinate park development and open space protection programs with the Eno River State Park and the Eno River Association.

Policy 7.2.2c. New Hope Creek Corridor Open Space Plan Update. The City-County Planning Department and the County Engineering Department, in conjunction with the New Hope Advisory Committee, shall continue to implement the New Hope Creek Corridor Open Space Plan and develop a schedule for updating the Plan to ensure that its objectives and policies are protecting the open space resources in the Corridor. (See Chapter 10, Parks and Recreation Element, Policy 10.1.4d, New Hope Creek Corridor Open Space Plan.)

Policy 7.2.2d. Little River Corridor Open Space Plan. The County Engineering Department and the City Parks and Recreation Department shall continue to implement the Little River Corridor Open Space Plan, coordinate its implementation with Federal, State and Local agencies and land trusts, and develop a schedule for updating the Plan. (See Chapter 10, Parks and Recreation Element, Policy 10.1.4e, Little River Corridor Open Space Plan.)

Policy 7.2.2e. Lick Creek and Little Lick Creek Open Space Plan. The City-County Planning Department, in conjunction with the City Parks and Recreation Department, the County Engineering Department and the Durham Open Space and Trails

Commission shall prepare an open space plan for the Lick Creek and Little Lick Creek basin area of Durham County. Base the plan on the integrated open space objectives of continuous open space corridors, water quality, wildlife habitat protection, scenic and aesthetic considerations, recreation, and preservation of significant historic and cultural features.

Policy 7.2.2f. Flat River Open Space Plan. The City-County Planning Department, in conjunction with the City Parks and Recreation Department, the County Engineering Department, and the Durham Open Space and Trails Commission, shall prepare an open space plan for the Flat River basin area of Durham County. Base the plan on the integrated open space objectives of continuous open space corridors, water quality, wildlife habitat protection, scenic and aesthetic considerations, recreation, and preservation of significant historic and cultural features.

Policy 7.2.2g. City Open Space Corridors. The City-County Planning Department, in conjunction with the City Parks and Recreation Department, shall identify and plan for a system of linked urban open spaces, such as along the Ellerbe Creek and Third Fork Creek, to identify important open space areas and opportunities for open space preservation and appropriate low impact recreational opportunities.

Policy 7.2.2h. Regional Coordination. The City-County Planning Department, City Parks and Recreation Department and the County Engineering Department shall coordinate Durham's open space plans with other jurisdictions' plans and other regional open space initiatives, such as the Triangle GreenPrint Project and the Center of the Region Enterprise Plan.

Policy 7.2.2i. State Open Space Efforts. Durham City and County shall support State open space efforts, such as the NC Million Acre Initiative, by coordinating its open space preservation efforts with the State.

Policy 7.2.2j. Open Space Collaboration. The City Parks and Recreation Department and the County Engineering Department shall work collaboratively with the Durham Open Space and Trails Commission, local land trusts, and other community organizations to increase the amount of open space preserved. The County Engineering Department shall establish and convene an open space coordination group, including the Durham Open Space and Trails Commission and various organizations and agencies involved in open space preservation, to meet regularly in order to ensure better coordination and opportunities for collaboration.

Policy 7.2.2k. Currently-Owned Real Estate as Open Space. The County Engineering Department shall review County real estate holding to identify those parcels that the County should retain and manage as open space. The City Parks and Recreation and General Services Departments and the City-County Planning

Department shall review City real state holding to identify those parcels that the City should retain and manage as open space.

Objective 7.2.3. Farmland Protection and Preservation

Protect active farmland in Durham in order to enhance economic activity and preserve Durham's rural heritage.

Policy 7.2.3a. Farmland Preservation Board. The City and County shall continue to support the Durham Farmland Preservation Board as an advisory body to the City and the County related to farming and farmland preservation issues.

Policy 7.2.3b. Agricultural Priority Areas. The County shall continue to designate Agricultural Priority Areas in order to establish priorities for targeting agricultural preservation efforts.

Policy 7.2.3c. Voluntary Agricultural Districts Program. The County shall continue its Voluntary Agricultural Districts Program, where land owners voluntarily maintain their properties in farm use.

Policy 7.2.3d. Farmland Conservation Easement Purchase. The County shall provide funds to purchase farmland conservation easements in Agriculture Priority Areas and aggressively seek grants and other forms of assistance to increase the funds available for farmland preservation.

Policy 7.2.3e. Present Use Valuation Programs. The County shall continue its Present Use Valuation Programs for agricultural, horticultural and forest land to provide an incentive for maintaining those uses in the County, by taxing land at its present use value rather than fair market value.

Policy 7.2.3f. Farmland Preservation Outreach. The County Soil and Water Conservation District and the County Engineering Department shall prepare and disseminate educational materials regarding the value of farmland preservation to the Durham community.

Policy 7.2.3g. Rural Tier Agricultural Activities. Through the Unified Development Ordinance, ensure that land use regulations allow agricultural activities by right within the Rural Tier. (See Chapter 2, Land Use Element, Policy 2.2.2g. Rural Tier Agricultural Activities.)

